

APPENDIX A - RURAL LANDSCAPE PROPERTIES WITH ASSOCIATED STRUCTURES

This appendix contains the compiled inventory information for all properties with structural components of the rural landscape in Cuyahoga Valley National Park, Ohio and the management methods that apply to them. Properties that are on the National Register of Historic Places are indicated. A full explanation for this table is found in Section 1.2.4.5.

Property Name	Municipality	School District	Tract #	National Register	Total Structures	Current Mgmt. Methods
Available - High Potential Farmstead Properties						
1 Cull Barn	Bath Twp.	Revere	118-32		1	SUP
2 Martin	Bath Twp.	Woodridge	116-26		3	None
3 Dickenson-Pittenger	Boston Twp.	Woodridge	115-33		6	MOU
4 Duffy	Boston Twp.	Woodridge	115-35	Y	7	None
5 Hazlett	Boston Twp.	Woodridge	120-12		1	RET
6 Hopkins-Congar	Boston Twp.	Woodridge	109-107	Y	4	SUP
7 Kurowski Barn	Boston Twp.	Woodridge	109-09		1	None
8 Noland	Boston Twp.	Woodridge	112-25		3	SUP
9 Point	Boston Twp.	Woodridge	114-63	Y	4	NPS/SUP
10 Robertson	Boston Twp.	Woodridge	119-45		5	LE
11 J. Clayton Stanford	Boston Twp.	Woodridge	109-103	Y	4	LE
12 Welton	Boston Twp.	Woodridge	112-65	Y	3	None
13 Hrabak	Brecksville	Brecksville	103-53	Y	4	None
14 Volkert	Brecksville	Brecksville	107-04		2	SUP
15 Carroll	Cuyahoga Falls	Woodridge	117-15		2	RET
16 Grether	Cuyahoga Falls	Woodridge	117-20		2	None
17 Muranyi	Cuyahoga Falls	Woodridge	121-55		1	RET
18 Underwood	Cuyahoga Falls	Woodridge	122-45		5	SUP
19 Garvey-Ross	Peninsula	Woodridge	118-51		4	RET
20 Holland	Peninsula	Woodridge	113-01		1	SUP
21 Lindley Barn	Sagamore Hills	Woodridge	107-35		1	None
22 Gleeson	Valley View	Cuya. Hts.	123-03	Y	7	NPS/SCEN/SUP
23 Kukoleck	Valley View	Cuya. Hts.	123-08		3	RET
Available - Low Potential Farmstead Properties						
24 Homestead	Boston Hts.	Woodridge	113-02		3	NPS
25 Jyurovat	Boston Hts.	Woodridge	113-27	Y	5	CA
26 Carl Boodey	Boston Twp.	Woodridge	109-43		2	RET
27 Kenneth Boodey	Boston Twp.	Woodridge	109-99	Y	3	LE
28 Chamberlain	Boston Twp.	Woodridge	114-47	Y	1	NPS
29 Duncan	Boston Twp.	Woodridge	114-72	Y	1	NPS
30 Fink	Boston Twp.	Woodridge	112-24		4	SUP
31 Gifford	Boston Twp.	Woodridge	114-55		2	NPS
32 Gillette	Boston Twp.	Woodridge	120-13		2	NPS
33 Gracey	Boston Twp.	Woodridge	114-41	Y	1	SCEN
34 Hardy	Boston Twp.	Woodridge	114-50	Y	1	NPS

Key: AE - Agricultural Easement; CA - Cooperative Agreement; Conc. Contract - Concession Contract; HPLP - Historic Properties Leasing Program; LX - Land Exchange; LE - Life Estate; MOU - Memorandum of Understanding; NHL - Non-historic lease; None - No current uses; NLR - New Leasing Regulations; NPS - Park Utilization; RET - Retention; SCEN - Scene-setters; SUP - Special Use Permits.

Property Name	Municipality	School District	Tract #	National Register	Total Structures	Current Mgmt. Methods
Available - Low Potential Farmstead Properties (continued)						
35 Johnston-Rodhe	Boston Twp.	Woodridge	118-77	Y	5	RET
36 Lavicka	Boston Twp.	Woodridge	114-46		2	NPS
37 Muar	Boston Twp.	Woodridge	114-54	Y	2	NPS/SCEN
38 Osborne	Boston Twp.	Woodridge	114-53	Y	2	NPS
39 Richardson	Boston Twp.	Woodridge	114-57	Y	2	NPS
40 Schmidt	Boston Twp.	Woodridge	114-42	Y	6	None
41 Stewart-Sager	Boston Twp.	Woodridge	114-52	Y	3	NPS/SCEN
42 Szalay	Boston Twp.	Woodridge	114-56		2	SUP
43 Tilden	Boston Twp.	Woodridge	108-03	Y	1	HPLP
44 Coonrad	Brecksville	Brecksville	107-31	Y	4	NPS/SCEN
45 Huefner Barn	Brecksville	Brecksville	106-06		1	NPS
46 McCreery	Brecksville	Brecksville	103-89		4	None
47 Conway	Cuyahoga Falls	Woodridge	115-42		6	LE
48 Lapchynski	Independence	Independ.	126-02		6	RET
49 Johnson	Northfield Cntr.	Nordonia	109-71		2	SUP
50 Rudolph	Peninsula	Woodridge	119-46		2	RET
51 Cofta	Richfield Twp.	Revere	108-21		5	None
52 Levoyer	Richfield Twp.	Revere	111-40		3	RET
53 Shafer	Sagamore Hills	Woodridge	107-43		4	LE
54 Zeller	Sagamore Hills	Nordonia	105-33		3	LE
55 Birth	Valley View	Cuya. Hts.	123-19	Y	1	None
Available-No Potential as Farmstead Property						
56 Szczudlo	Brecksville	Brecksville	106-09		5	None
57 Krimmer	Boston Twp.	Woodridge	114-44		4	None
58 Packard-Doubler	Independence	Independ.	126-20	Y	1	HPLP
No Change in Management Planned						
59 Cranz	Bath Twp.	Revere	120-33	Y	7	LX
60 Hammond-Cranz	Bath Twp.	Revere	120-55	Y	7	HPLP
61 Hine House	Bath Twp.	Revere	116-18		3	NPS/SCEN
62 Schmidt-Foster	Boston Hts.	Woodridge	110-34		3	CA
63 Clayton Stanford	Boston Twp.	Woodridge	109-39		1	CONC
64 EEC Admin.	Boston Twp.	Woodridge	114-05		3	NPS
65 General Store	Boston Twp.	Woodridge	114-48	Y	3	NPS/SCEN
66 George Stanford	Boston Twp.	Woodridge	109-66	Y	4	CONC
67 Hawkins	Boston Twp.	Woodridge	114-49	Y	5	NPS/SCEN
68 Kepner	Boston Twp.	Woodridge	114-51	Y	1	NPS
69 Lipscomb	Boston Twp.	Woodridge	119-42		3	NPS
70 Schulze Barn	Boston Twp.	Woodridge	113-45		1	NPS
71 Delahanty	Boston Twp.	Woodridge	112-16		2	AE
72 Wetmore-Pittenger	Boston Twp.	Woodridge	119-34		5	NHL
73 White Pines	Boston Twp.	Woodridge	114-39		3	NPS
74 Fabbeo Barn	Brecksville	Brecksville	107-11		1	NLR

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APPENDICES

Property Name	Municipality	School District	Tract #	National Register	Total Structures	Current Mgmt. Methods
No Change in Management Planned (continued)						
75 Leyser	Brecksville	Brecksville	106-05		2	NLR
76 Vaughn	Brecksville	Brecksville	106-03	Y	5	NLR
77 Botzum	Cuyahoga Falls	Woodridge	116-32	Y	7	HPLP
78 Brown-Bender	Cuyahoga Falls	Woodridge	121-62	Y	4	HPLP
79 Himelright	Cuyahoga Falls	Woodridge	117-30		3	AE
80 Hunt Farm	Cuyahoga Falls	Woodridge	121-05	Y	4	NPS/SCEN
81 Parry Howe Meadow	Cuyahoga Falls	Woodridge	117-28		2	NLR
82 (formerly SES)	Cuyahoga Falls	Revere	121-30		1	NPS
83 Kurtz	Independence	Independ.	126-45		4	AE
84 Haramis	Peninsula	Woodridge	112-78		5	AE
85 Wallace	Sagamore Hills	Nordonia	107-89	Y	3	HPLP

Key: AE - Agricultural Easement; CA - Cooperative Agreement; Conc. Contract - Concession Contract; HPLP - Historic Properties Leasing Program; LX - Land Exchange; LE - Life Estate; MOU - Memorandum of Understanding; NHL - Non-historic lease; None - No current uses; NLR - New Leasing Regulations; NPS - Park Utilization; RET - Retention; SCEN - Scene-setters; SUP - Special Use Permits.

APPENDIX B - RURAL LANDSCAPE MANAGEMENT POLICIES, PROTOCOLS, AND MONITORING

All rural landscape management activities in Cuyahoga Valley National Park will follow the policies and protocols outlined below.

A. Agricultural Practices

All agricultural practices in CVNP will conform to the policies and guidelines of the NPS and the agricultural guidelines of the State of Ohio. No agricultural use or activity will be allowed that would cause unacceptable impacts on a park's resources, values, or purposes. Furthermore, all agricultural activities and livestock operations that take place in national parks are to be conducted in accordance with accepted, best management practices that protect vegetation, and wildlife and its habitat, safeguard sensitive species, control proliferation of exotic species, conserve soil, protect riparian areas and ground water, avoid toxic contamination, and preserve cultural sites. Relevant public health and safety regulations regarding food service and distribution will apply as detailed in NPS Director's Order #83: Public Health and NPS Management Policies (NPS 2001e).

Sustainable Agriculture – Farmers that are required by their lease agreement to farm using sustainable agricultural techniques will follow the guidance provided in *Appendix E - Production Practices for Sustainable Agriculture*.

Pest Management/Pesticide Use - Standard Integrated Pest Management (IPM) practices and NPS-approved pesticide applications are required for all pesticide uses in the park (NPS 2001e). NPS IPM guidelines promote cultural and biological means of pest control over chemical means. Cultural control measures include such practices as crop rotation, companion planting, manual removal of pests. Biological pesticides (e.g., *Bacillus thuringiensis*, milky spore, beneficial fungi), control agents such as predators or parasites (e.g., ladybugs, aphid wasps) and bioengineered/genetically-modified products or crops (e.g., *B.t.-corn*) are subject to the same IPM review process as pesticides (NPS 2001e). Some agents may require additional NEPA compliance before approval.

Use of Water Resources - Use of surface waters and groundwater will comply with NPS Management Policies (NPS 2001e; Section 4.6.2), Ohio water rights laws, and Ohio EPA guidelines. A reasonable use doctrine will be followed to ensure that park uses of waters do not adversely affect downstream uses.

Wildlife Deterrents - Visual and audio deterrents and guardian animals (e.g., dogs, llamas, donkeys) will be permitted on leased areas, but NPS approval is required in each case to minimize effects on aesthetics, visitor safety, and wildlife. Guardian animals will be permitted only within fenced areas.

Artificial Housing - Some small-scale artificial housing/feeding is expected near occupied buildings (e.g., bird feeders, birdhouses). No other feeding of wildlife will be permitted.

Farming of Woodlands - The farming of woodlands (e.g., syrup production, mushrooms, medicinal plants) is not currently planned. If such activity were to be considered in the future it would be examined in another NEPA document. However, tapping trees that are clearly within leased yards and fields would usually be permitted.

Open Fires - Open fires (e.g., burning of fields or brush piles) are not permitted by local ordinances and for safety reasons. CVNP currently does not use prescribed fire as a management tool. If fire were ever to be used to manage habitats in CVNP, a revised Fire Management Plan would be drafted with standard environmental and cultural resource compliance and review procedures. Recreational contained fires (e.g., campfires and barbecues) may be permitted with the approval of the Superintendent and relevant local authorities when applicable.

Composting - Composting will be located so as not to detract from the natural scene and done outside of buffers to wetlands and surface waters. All plans for composting will be approved by CVNP through annual farm operating plans. Additionally, the preferred method for disposal of dead livestock will be on-farm composting. Farmers must be certified to conduct on-site livestock composting through completion of the Ohio State University Extension program "Livestock Mortality Composting Educational Training" as outlined by Ohio Department of Agriculture guidelines.

Beekeeping - Traditional honeybee keeping may be approved. Honeybees have become naturalized and perform important ecosystem functions. The use of exotic species of bees would require NPS approval and additional environmental compliance activities.

Harvesting Wood - Collecting wood on park property is generally prohibited under 36 CFR 2.2(a)(4). However, the Superintendent may give written permission to collect downed firewood for personal use by lessees. Collecting wood outside leased properties is not permitted.

Management of Fallow Fields - Lease farm fields will be managed as directed by the NPS and will follow the Habitat Management Plan when developed.

Special Events - Any events (e.g., barn dances, concerts, rally days, overnight camping) planned by non-NPS entities require individual Special Use Permits and NPS approval.

B. New Construction

Construction Activities - As with any other activity within the park, proposals for additions or modifications to structures or the landscape (e.g., outbuildings, fencing, bridges, farm ponds) will require approval by the NPS. All standard review and compliance procedures will apply. Changes to the landscape and structures will generally be more restricted on historic properties.

Farm Fencing - The preservation, restoration, and construction of farm fencing will follow the guidance provided in Appendix G - Farm Fencing in Cuyahoga Valley National Park.

C. Natural Resource Protection

Wetland and Riparian Areas - Livestock will not be permitted in open waters or wetlands. Establishing appropriate protective buffer zones will also protect all rivers, streams and wetlands. The park has developed protection plans that assign wetland buffer sizes based on wetland quality and riparian buffer zone sizes depending on drainage area (NPS 2002a; NPS 2002b). These buffer plans are summarized in Appendix H. Farming activities and development will be prohibited within established buffer areas except as outlined in the plans.

Exotic and Invasive Species - The introduction of exotic species into national parks is prohibited by NPS policy and EO 13112. All crop selections and livestock must be approved by the NPS. Farmers will be required to minimize risks and control any species that escape from their agricultural areas. The park will support most efforts to remove or control exotic species in and around rural landscape components. Any such activity would need to be part of an approved park plan and would require prior NPS coordination and approval.

Cuyahoga River Course - The natural meander of the river and its tributaries will be left unimpeded except in cases where it threatens a significant and unique park resource (i.e., railroad, Towpath trail, structures). Undoubtedly some open space suitable for agriculture will be both lost and gained over time through this process.

Topographic Changes to Lands - No changes in topography (e.g., grading lands, widening drainages, etc.) will be permitted, except where permitted for approved farm pond construction.

D. Monitoring Efforts

In order to assure that agricultural activity conforms to these policies and protocols, the following monitoring efforts will be implemented:

- An interdisciplinary NPS committee was created to oversee and review agricultural plans and activities in the park.
- The NPS Historical Architect will conduct annual inspections to assess the condition of historic fabric to ensure that properties are being preserved adequately.
- NPS cultural landscape staff will conduct annual farm visits to ensure the preservation and protection of the rural landscape. Farms will be assessed for undocumented changes to the landscape in agricultural fields and curtilage. In

addition, the general condition of farm landscapes will be assessed to ensure adequate upkeep.

- NPS Resources Management staff will inspect wetland and riparian buffer boundaries adjacent to agricultural lands annually through site visits during the growing season.
- The Cuyahoga Valley Countryside Conservancy (CVCC) has broad monitoring responsibilities for Countryside Initiative farmers. CVCC staff maintains close contact with lessees, normally visiting farms several times each month to observe operations, and to offer guidance on management issues. In addition to such continuous, informal monitoring, CVCC more formally assists lessees' preparation of an Annual Operating Plan, and an Annual Operating Review. Thereafter, CVCC helps CVNP evaluate these documents for compliance with park policies and guidelines. While CVCC has a general oversight function for all aspects of lessee farm use, it is particularly responsible for observing and comparing their production practices with commonly accepted standards for sustainable agriculture.
- NPS staff, cooperators and independent researchers will continue to research and monitor natural resources in and around agricultural areas. The park will encourage and support new projects that examine the effects of agricultural activities on natural resources and identify important ecological indicators. Several such agricultural research projects are currently underway or planned.

APPENDIX C - SUMMARY OF SCOPING AND PUBLIC PARTICIPATION

A. Formal Public Scoping Activities

The following scoping activities related to rural landscape management have occurred.

April 2001	Environmental Assessment process begins. NPS initiates an Environmental Assessment (EA) to address the proposed changes in rural landscape management.
May 2001	Scoping Initiated. Scoping letters requesting input on issues and alternatives for the EA mailed to approximately 50 agencies and organizations. Press releases sent to major media outlets. Press coverage included an article in <i>Akron Beacon Journal</i> . Twenty written comments were received.
July 2001	Environmental Impact Statement initiated. The NPS decided an Environmental Impact Statement (EIS) was more appropriate to assess the proposed action. All scoping materials from the EA were kept for the EIS.
July 27, 2001	Notice of Intent published in <i>Federal Register</i>. Notice suggested a range of alternatives, noted that public meetings would be scheduled, and directed the public to a special park website for the EIS. A 45-day public comment period began.
August 3, 2001	Scoping process initiated. A press release to approximately 160 local media contacts and 400 individuals announced the public meetings to be held Aug. 22, 2001. Press coverage included an article in <i>Akron Beacon Journal</i> . The press release and the summary of issues and alternatives identified during the EA scoping process were made available on the park website. Letters specifically requesting input were mailed to 83 natural and cultural resource agencies, agricultural groups, local municipalities, universities, organizations and to 26 individuals.
August 22, 2001	Public open houses held. Two meetings held at Boston Store, Boston Ohio. The open house format provided information on the proposed action, possible alternatives, and a summary of issues already identified. Approximately 40 people attended the meetings.
September 11, 2001	Scoping Period Closed. Public input accepted until September 11, 2001. Seventeen additional written comments were received.
February 2003	Notices of Availability published in <i>Federal Register</i>. The NPS NOA was published on February 5, 2003. The US EPA NOA was published on February 14, 2003, beginning the official 60-day public review period.
March 19 & 20, 2003	Public meetings held. Two meetings were held at Boston Store, Boston Ohio to receive comment on the Draft EIS. Approximately 40 people attended.
April 15, 2003	Comment Period Closed. Seventy-seven written comments were received. Comments received within 2 weeks after the comment period closed were accepted. Comments and responses are found in Chapter 5.

B. Groups Contacted During Scoping Activities

The following agencies, organizations, tribes, businesses, and municipalities either participated in preliminary or formal scoping activities directly or were invited to do so by the NPS. Members of some groups participated in discussions, attended meetings, or submitted written comments. Other groups were directly encouraged to participate in scoping through letters from the park Superintendent requesting input.

Akron Optimist Club	Hale Farm & Village
American Farmland Trust	Heritage Farms
Animal Protection Institute	Hunker Associates, Inc.
Army Corp of Engineers	Lake Farmpark
Bath Township	Luther Farms
Blossom Music Center	Medina Summit Land Conservancy
Boston Mills/Brandywine Ski Resorts	Metro Parks, Serving Summit County
Boston Township	Miami Tribe of Oklahoma
Boy Scouts of America	Northfield Center Township
Brandywine Golf Course	Oberlin College
Brandywine Inn	Ohio Department of Natural Resources
Carriage Trade Farms	Division of Natural Areas and Preserves
Center for Farmland Preservation in Northeast Ohio	Division of Parks and Recreation
Church in the Valley	Division of Soil and Water
City of Akron	Division of Wildlife
City of Bedford	Ohioan Ecological Food and Environment
City of Brecksville	Ohio & Erie Canal Corridor Coalition
City of Cuyahoga Falls	Ohio Audubon Society
City of Fairlawn	Ohio Canal Corridor
City of Hudson	Ohio Department of Agriculture
City of Independence	Ohio Ecological Food and Farming Association
City of Valley View	Ohio Environmental Protection Agency
Cleveland Metroparks	Ohio Greenways
Cleveland Museum of Natural History	Ohio Historical Society
Cleveland State University	Ohio Horseman's Council
County of Cuyahoga County	Ohio State University, Agroecology Mgmt. Program
County of Summit County	Ohioans for Animal Rights
Crooked River Herb Farm	Ottawa Tribe of Oklahoma
Crown Point Ecology Center	Phillis Wheatley Association
Cuyahoga River Remedial Action Plan	Reed Orchards
Cuyahoga Valley Communities Council	Richfield Township
Cuyahoga Valley Countryside Conservancy	Sagamore Hills Township
Cuyahoga Valley National Park Association	Shawnee Tribe
Cuyahoga Valley Scenic Railroad	Shawnee Tribe of Oklahoma
Cuyahoga Valley Trails Council	Seneca-Cayuga Tribe of Oklahoma
Delaware Tribe	Seneca Nation - Tribal Historic Preservation Office
Delaware Tribe of Western Oklahoma	Sierra Club - Portage Trail Group
Dover Lake Waterpark	Stanford House Hostel
Ecophilia	Summit Soil & Water Conservation District
Eastern Shawnee Tribe of Oklahoma	The American Livestock Breeds Conservancy
Foote's Valley Farms	The Fund For Animals
Friends of the Crooked River	The Humane Society of the United States
Friends of Wetlands	The Nature Conservancy
Greater Akron Audubon Society	

University of Akron
University of Guelph
United States Department of Agriculture
 Forest Service
United States Department of the Interior
 Fish & Wildlife Service
 National Park Service, Midwest Region Office
 National Park Service, Water Resources
 Division, Denver Service Center
United States Environmental Protection Agency
Valley View Village Church
Village of Boston Heights
Village of Peninsula
Village of Richfield
Village of Walton Hills
Western Cuyahoga Audubon Society
Western Reserve Girl Scout Council
Western Reserve Historical Society
Western Reserve Resource Conservation & Development Council
Wilson Feed Mill
Wyandotte Nation

APPENDIX D - DEFINING MANAGEMENT GOALS FOR THE RURAL LANDSCAPE IN CUYAHOGA VALLEY NATIONAL PARK

The rural landscape in Cuyahoga Valley National Park is composed of agricultural open space and associated structures. Federally-owned lands and structures existing within the boundary of CVNP are the subject of this EIS. Earlier inventories of these resources were completed in the 1987 CLR and 1994 BUP. Since the earlier inventories, additional lands and structures have been acquired, in some cases outside of the earlier park boundary. In some areas, succession has been permitted to occur, reducing the amount of available open land. Buildings have been lost to disuse and decay or demolition. These changes have left CVNP with a slightly different set of rural landscape components than those identified in earlier planning documents. Available open space and structures that may be utilized for rural landscape management activities are described and defined in this Appendix.

Park-wide Open Space Inventory

An inventory of open space was conducted in 2001 to identify open space in the park. Open space was broadly defined as areas that could be characterized as areas of current or recent agricultural use, areas kept open through periodic mowing, and early successional habitats dominated by herbaceous vegetation and no or few mature trees. Open space was first identified through the examination of 1994 digital aerial photography (orthophotoquads) with some subsequent field verification.

Approximately 4,100 acres of open space were identified within the park boundary. More than half of these areas are known or believed to be actively managed by the NPS or other public and private landowners through mowing or agriculture (a better estimate is not possible as management regimes by non-NPS entities are not well-documented.)

Potential Agricultural Open Space on Federal Land

From this broad open space inventory, federal lands were identified that may contribute to the rural landscape. Areas specifically kept open for non-agricultural purposes (e.g., mowing for visibility or recreational use) were generally excluded from the analysis, except when these areas were identified as contributing to an agricultural theme in the CLR.

Apparent open space that was immediately found to have significant natural resource conditions (e.g., predominance of wetlands) or isolation from other agricultural elements, which would likely prohibit its use as an agricultural area, was omitted. Additionally, intentional efforts were made to reduce the amount of shrub habitat that would be included in the inventory. Some large areas composed of primarily shrubby vegetation were omitted from the inventory in order to preserve the habitat quality and value of this limited park resource.

The boundaries of many of these open areas (52 percent) were eventually digitized using Global Positioning System receivers to improve the accuracy of the inventory. The boundaries of the remaining areas were estimated by manually digitizing open space areas from the aerial photos.

A total of approximately 1,345 acres of open space were identified on approximately 18,500 acres of federal land (7 percent). The maps at the end of Chapter 2 depict the location of these areas. A total of 208 open areas ranging in size from 0.009 acre to 75.5 acres in size (mean = 6.2 acres) were identified.

Management Goal for Agricultural Open Space

Cuyahoga Valley National Park proposes to manage these 1345 acres as part of the park's rural landscape. An explanation of how this goal was determined follows and is summarized in Table A1.

The GMP for the park indicated that the preservation of agricultural use as it existed when the park was created was a primary goal of the park. However, a full inventory of agricultural resources in the park was not completed for the GMP. A rough estimate using a 1974 land cover classification (Mosure-Fok et. al 1975) indicated that approximately 3.8 percent of the Cuyahoga Valley area could be classified as cultivated land or orchard (NPS 1976). This rough assessment did not present an entirely accurate representation of what existed on the ground. Indeed, further study and more accurate inventories of the resources were mandated in the GMP.

The 1987 CLR was completed to identify significant elements of the cultural landscape (NPS 1987a). The CLR identified 185 property tracts within the park boundary that contributed primarily to an agricultural theme. Agriculture may have been an important secondary theme on other property tracts, but these tracts were identified in the CLR as primarily contributing to other major themes in the park: prehistory, settlement, transportation, industry, or recreation. The NPS did not own or manage all of these tracts in 1987. Estimated open space acreage was provided only for tracts that the NPS owned and managed at that time. Approximately 1160 acres of agricultural open space were identified on 98 federal tracts (Table A1).

When comparing the 2001 open space inventory to the 1987 CLR, an additional 390 acres of agriculturally significant open space can now be included as primarily contributing to the agricultural theme. This new acreage has become available through land acquisition or the expiration of retentions and life estates since 1987. Combining the 1987 acreage and the acreage acquired since 1987 results in a total of approximately 1550 acres. However, approximately 615 of the original 1160 acres (53 percent) managed by the NPS in 1987 are no longer considered open space or were transferred into private management through sell-backs or land exchanges, leaving only approximately 935 acres of agricultural open space identified in the CLR available today.

Table A1. Summary of Agricultural Open Space Management Goal

<u>Description</u>	<u>Acreage</u>
Original Acreage On 1987 CLR Lands	1160
CLR Acreage Gained Since 1987	<u>+390</u>
<i>Total CLR Potential Lands</i>	<i>1550</i>
CLR Acreage Lost Since 1987	<u>-615</u>
<i>Total CLR Lands Currently Available</i>	<i>935</i>
Additional Open Space Currently Available	<u>+410</u>
<i>Total Agricultural Open Space</i>	<i>1345</i>

Clearly, large areas of agriculturally significant land have been lost over time to succession. To restore and rehabilitate the rural landscape, reopening these areas for agriculture is a possible option. Areas that have moved into succession could be cleared and reestablished as part of the rural landscape, but this would result in significant undesirable impacts on the natural environment. This option will not be considered for reasons outlined in EIS Section 2.9. Replacing the lost acreage with open space currently available is a more reasonable approach to the restoration and rehabilitation of the rural landscape that minimizes any interference with natural processes. The open space inventory identified an additional 410 acres of currently open space not originally identified in the CLR as being primarily significant to the agricultural theme. Since much of the Cuyahoga Valley was farmed in the past, it is reasonable to assume that agriculture was at least a secondary theme in many of these areas. Therefore, CVNP will use this additional open space to help restore and revitalize the rural landscape.

In summary, agricultural open space is defined for this EIS to be approximately 1345 acres of federal land, comprised primarily of agricultural areas identified in the CLR that remain open and supplemented by other current open space. Currently, the NPS manages approximately 740 acres using one of the methods described in EIS Section 1.2.4.5. The remaining areas of available open space are not currently managed by the NPS.

Rural Landscape Structure Inventory

In determining which existing structures under the management of CVNP contribute to the rural landscape, information was compiled from the 1987 CLR, 1994 BUP, Everett Historic District CLR (NPS 1995), and the CVNP Structures Update (NPS 2001b). From this information, a list was generated of tracts and properties contributing to the rural landscape. This list includes tracts and properties within the park boundary on both federally-owned land and non-federal land where the park has a management interest.

Site visits were then conducted and property records were referenced to determine the number of existing structures per property. The properties and structures were then classified by management method.

This classification not only depicts how properties and structures are being currently managed but it also shows more generally which buildings are used vs. not used in the park.

A total of 85 properties contribute to the rural landscape in CVNP. These properties consist of 267 structures. Non-federal property owners (i.e., agricultural easements and land exchanges) utilize 21 structures. The remaining 246 structures are federally-owned with 130 being actively managed by the park through the various methods as summarized in EIS Section 1.2.4.5. Some structures are not currently used by the NPS and are vacant. Also, the park does not currently manage 50 structures as they are under retention or life estate agreements. However, these structures will eventually be turned over to the park and therefore may be considered for future uses.

Management Goal for Structures

Some NPS structures that contribute to the rural landscape have an existing use and management method that park managers view as long-term and unchanging while others are clearly available for modified and new uses (Appendix A). A total of 58 properties consisting of 175 structures are considered to be available for management under the proposed action using the various methods described in the alternatives, with the other 71 NPS structures having no change in use planned. Specifically for Alternative 2, properties were characterized as having high, low, or no potential for becoming part of an active farmstead. Twenty-three properties were identified as having high farmstead potential while the 32 are considered low farmstead potential, and three as no potential. This assessment was largely qualitative based upon location in respect to available open space, number of outbuildings, historical significance, and proximity to other potential farmsteads. The overall management goal for structures is to protect all structural components of the rural landscape.

APPENDIX E - PRODUCTION PRACTICES FOR SUSTAINABLE AGRICULTURE

A. History of Sustainability

Sustainable agriculture is a generic term used to identify a diverse set of farming practices. Included under this conceptual umbrella are several discrete schools of thought and practice bearing names like organic, biointensive, biodynamic, permaculture, holistic, civic, integrated, and low-input. The term sustainable came into wide use following the 1988 establishment of a small program within the United States Department of Agriculture, named Low Input Sustainable Agriculture. After several years, that program was renamed the Sustainable Agriculture Research and Education Program as it became more apparent that sustainability was far more complex than limiting expensive production inputs and avoiding ecologically harmful practices.

Even in its early years, sustainable agriculture explicitly rejected most of the assumptions and practices of industrial agriculture. It advocates more and smaller farms; limited capitalization and limited use of credit; selective appropriate mechanization; replacement of most agricultural chemicals with biological, cultural, and mechanical alternatives; and grass-based, free-range livestock systems. Equally importantly, sustainable agriculture rejects the assumption that maximizing short-term economic profit is an overriding end that constrains all decision-making.

In recent years, as sustainable farming has begun to emerge as a viable alternative in certain contexts to industrialized food production methods, a broad consensus is forming regarding its fundamental nature. To be truly sustainable, practitioners now argue, agriculture must be economically profitable, socially responsible, and ecologically healthy. Agriculture that lacks any of these three characteristics is not sustainable over time.

B. Sustainable Practices

Sustainable farmers will be expected to possess and use substantial knowledge of sustainable production practices. There are a wide range of practices which are acceptable for most enterprise types, and farmers are free to choose whichever practices they prefer, provided they do not violate general principles of sustainability. The charts shown here suggest a spectrum of practices from less sustainable to more sustainable. Farming in the real world is not abstract; it involves specific conflicting circumstances and pressures that are not easy to balance. In general, however, sustainable farms must strike a balance that puts them clearly within the more sustainable parts of the spectrum.

*Production Practices for Sustainable Crops***Production Practices for Sustainable Vegetable/Crop Enterprises***

	Less Sustainable Thinking		More Sustainable Thinking	
Crop Rotation	Monoculture (same crop in the same field each year)	Two years between the same crop planted in the same field	Three years between the same crop planted in the same field	Four years between the same crop planted in the same field
Organic Matter Maintenance	Add crop residues only	Add animal manures & crop residues	Add cover crops, animal manures, & crop residues	Add compost, & cover crops, & crop residues to soil
Nitrogen Fertilization	Broadcast bagged fertilizer in fall	Broadcast bagged fertilizer in spring	Band and sidedress fertilizer to match timing of crop uptake	Rely on N from organic residues in addition to timely fertilization
Insect Management	Calendar spray of insecticides (on predetermined schedule)	Scout for insect pests, then spray non-selective insecticide	Scout for insect pests, then spray selective, least-toxic pesticide	Use cultural practices and beneficial insects to control pests
Weed Management	Apply herbicides as primary weed control tool	Apply reduced rates of herbicide and cultivate	Cultivate to remove weeds	Use allelopathy, smother crops, and mulches to suppress weeds
Disease Management	Apply fungicide on a predetermined schedule (e.g. weekly)	Use disease modeling to time fungicide applications as needed	Employ cultural practices that prevent disease	Plant disease-resistant cultivars

* Adapted from Grubinger 1999.

Production Practices for Sustainable Livestock Operations

Like sustainable crop production, sustainable livestock production involves a wide range of production practices that are acceptable. Farmers are free to choose among literally hundreds of specific management options related to livestock species, breeds, genetics, facilities, feeds and feeding, grazing systems, health care, butchering and processing, marketing, and so forth; provided those choices result in humane care of all farm animals during the course of their lives, and provided that the environmental consequences of the livestock enterprise are positive.

C. Animal Welfare

Sustainable livestock operations must use what are generally referred to as loose confinement systems. That is, poultry are not caged, swine are not tightly crated, beef cattle are not packed into feedlots, and dairy cattle are not confined to small exercise areas. All livestock must have regular access to open air and pasture. All livestock facilities must be properly ventilated and provide animals with clean, dry rest areas (sheltered from wind during cold weather). Each farmer is responsible for recommending specific livestock management practices for CVNP review and approval.

D. Grass-Based Livestock Production

In simplest terms, sustainable livestock enterprises are expected to be grass-based. Plant scientist and grazing researcher E. Ann Clark, University of Guelph (Ontario, Canada), describes certain recent concepts of grass-based farming as attempts to mimic or mirror natural processes (Clark et. al. 2002). In nature, there is no waste, because the output of every process constitutes the inputs for other processes. In contrast, conventional livestock production systems (which depend on specialized crop production to support livestock fed in confinement) break many of the natural cycles that protect ecological systems.

Clark notes that properly managed grass-based livestock production will mimic nature in at least five key ways, which are described here in very simplified form. More technical discussions by Clark and others will be available in a forthcoming volume on sustainable livestock production being published by Natural Resource, Agriculture, and Engineering Services (NRAES) (Rayburn et al. 2002), a consortium of the Cooperative Extension Services of 13 eastern land grant universities and the United States Department of Agriculture.

Ground Cover. Perennial pasture provides year-round ground cover protecting bare soil from crusting, pore clogging, and the erosive effects of rainfall. Ground cover acts as a mulch, reducing moisture loss, stabilizing daily soil temperatures, and inhibiting weeds and insects associated with annual plowing (which are conventionally treated with biocides). Note: The sustainable crop production practices described in this appendix also ameliorate many of the problems related to conventional annual plowing.

Soil Conservation. Perennial pastures grow and contribute to soil organic matter from early spring to late fall. Moreover, uncultivated land promotes the accumulation of organic matter and nutrients frequently lost during conventional cultivation. This enhances a vigorous soil biotic community and strong plant growth. In turn, that enhances water infiltration and reduces runoff, thereby reducing soil erosion and off-site contamination.

Nutrient Cycling. Perennial sods reduce the risk of off-site pollution through efficient nutrient cycling. They provide active nutrient uptake during high precipitation in early

spring and late fall (in marked contrast to annual crops). Grassland impedes overland movement of water and deep-rooted pasture plants (like alfalfa) intercept and take up beneficial nutrients (which could become pollutants if they were to percolate past the plant root zone).

Manure. Livestock produce manure, a valued source of nutrients (in limited quantities) on a well-integrated farm. But manure is a huge waste/contamination problem for confinement feeding operations. In most large-scale livestock enterprises, where most of the livestock feed comes from off-site, there is little possibility that the site can absorb the manure generated. Sustainable livestock enterprises will be expected to match livestock numbers to both the grazing capacity and the manure utilization capacity of a particular farm site. **Note:** *It is also assumed that properly managed grass-based farms do not allow livestock direct access to streams or ponds, thereby avoiding water pollution and bank collapse/erosion.*

Biocide Independence. Well-managed perennial pastures do not require any type of pesticide or herbicide. In short, properly managed grass-based livestock production removes several serious environmental harms that frequently result from conventional, grain-based, close-confinement systems. Grass-based systems are well-suited to the type of small scale, diversified farming preferred. Two specific management practices commonly used in grass-based farming are appropriate and preferred: management intensive grazing and multi-species grazing.

Management Intensive Grazing. One of the key tools of grass-based livestock production is commonly termed management intensive grazing (MIG). MIG is knowledge and labor intensive, not capital, chemical, or technology intensive. Indeed, some of today's finest graziers describe the management of soil, plants, livestock, weather, market demand, and other factors, as an art. That is an apt term for the depth of understanding, and creative adjustments, required to balance and guide so many subtle factors toward desirable ends. Traditional/conventional pasture management in America has been anything but management intensive or an art form. Traditional/conventional pasture management is often termed continuous grazing. The basic strategy here is to do nothing: Turn livestock into a pasture for the entire season, letting them pick and choose to eat whatever, and wherever they like. This results in many economic and ecological drawbacks.

MIG systems operate at the opposite end of the sustainable grazing spectrum, using what is usually called rotational grazing or strip grazing. Here livestock are moved from one grazing paddock or area to another ever day or so (every few hours in some systems), depending on how a grazer chooses to balance the many factors involved. It is important to note that rotational grazing actually allows animal stocking rates from two to ten times as high per acre as continuous grazing, while avoiding the overgrazing problems commonly associated with continuous grazing.

Multi-species Grazing. CVNP will encourage multi-species grazing in its various forms (grazing sheep, goats, cattle, and poultry sequentially or together). Multi-

species grazing pushes pasture ecosystems toward diversity, complexity, and stability while simultaneously reducing herd/flock disease and parasite pressure, and market cycle risks associated with single species production.

APPENDIX F - NEW LEASING REGULATIONS - LEASE OFFERINGS AND REQUIREMENTS

A. Legislative Authorization

Long-term leasing of federally-owned or administered property, for purposes such as the Countryside Initiative, is authorized by 16 U.S.C. 1a-2(k) and 16 U.S.C. 470 h-3, as implemented by National Park Service Regulations 36 CFR part 18 (including rule amendments issued December 27, 2001 in 66 FR 66755). Referenced regulations allow leases of up to 60 years, at fair market value rent. Prior to these current authorizations, use of NPS lands for specifically agricultural purposes has been limited to (SUPs) covering periods of one to five years. Although short-term SUPs are intended to prevent or limit serious damage to park lands, ironically, they act as a negative incentive to basic land stewardship. It is economically irrational for farmers to undertake costly long-term land care programs, which can take years or decades to implement, since they have little assurance of a reasonable return on their investment. The leasing authority now available resolves this inherent dilemma.

B. Cooperative Efforts

In 1999, a new nonprofit organization, the CVCC, was established to help develop and manage the Countryside Initiative. Under the terms of a Cooperative Agreement with the NPS, the CVCC provides technical information and guidance on sustainable agriculture, helps prioritize rehabilitation of farm properties, recruits and evaluates prospective farm lessees, and will evaluate and monitor each farm's annual operating plan. CVCC will work closely with each farm lessee to align their private goals and annual operating plans (see section F) with the public objectives of the rural landscape management program in CVNP.

C. Competitive Proposal Process

A Request for Proposals, open to all interested parties on a competitive basis, will be made periodically as farms in CVNP become available for leasing. Proposals will be carefully reviewed and those judged most likely to achieve a particular farm's best use (including demonstration of the proposers' capacity to successfully implement the proposal) will be awarded the right to negotiate a lease.

D. Duration & Transferability of Leases

The maximum term or duration of any lease will be 60 years, at which point a new open competitive proposal process is once again required by law. Some lessees may prefer a shorter-term lease. However, a competitively earned leasehold interest is transferable (by gift, sale, or other device) during the lease term, to the lessees' children, or to other persons, subject to approval by CVNP. Any transfer of the right to occupy and operate a farm is contingent upon the lessee and transferee satisfactorily demonstrating that such a change will result in equal or superior management of the farm.

E. Responsibility for Continuous Active Farming

Achieving the purpose and objectives of rural landscape management in CVNP depends upon all leased farms being actively and continuously operated as described in selected lessees' proposals, in their subsequently negotiated leases, and in annually approved operating plans. If a lessee fails to fulfill the obligations of his or her lease, for whatever reason, CVNP will issue a notice of default. Monetary defaults must be cured within 30 days. Non-monetary defaults must be cured in 60 days, or a plan to cure that is satisfactory to CVNP must be supplied within 60 days. CVNP will accept or reject a plan to cure within 30 days of its receipt. At its sole discretion, CVNP may grant the lessee the right to attempt a transfer of lessee's remaining leasehold interest. Such transfer must be affected within twelve months of CVNP's original notice of default, and the lessee must maintain his or her obligations under the lease while efforts to affect the transfer are in process. Failure to cure a default within the period allowed, or failure to provide CVNP an acceptable plan to cure, or failure of CVNP to grant the lessee the right to attempt a transfer, will result in CVNP exercising its retained right to immediately reenter and repossess the farm property.

F. Annual Farm Operating Plans

Annual operating plans will include the following elements. These plans must be reviewed and accepted by the NPS before implementation.

- **Narrative Description** – A detailed description of the lessee's desired operating program for the upcoming year, giving particular attention to production and marketing practices. This narrative should clearly explain the lessee's intent. The verbal text should be accompanied by maps (whole farm, field/plot plans, etc.) which clearly locate any proposed production activity (such as plowing, planting, chemical application, soil amendments, poultry skids, dead livestock composting site, etc.). Description of the lessee's marketing plans/activities should cover all of the lessee's sales outlets: Wholesale (stores, restaurants), farmer's market, farm stand, etc. A timeline should also be prepared covering all proposed activities.
- **Enterprise Budget** – A detailed description of the lessee's expected gross farm revenues and expenses.
- **Physical and Capital Improvements** – A detailed description of all proposed physical changes, repairs, or improvements which the lessee hopes to make to the premises. Verbal narrative, maps, charts, budgets, construction details, etc. will be required to make clear the lessee's intent. The CVCC will assist the lessee in developing satisfactorily detailed and clear proposals.

G. Dual Components of Fair Market Value Rent

All CVNP farms must be leased at fair market value rent. In the marketplace, farm leases are commonly based on two distinct financial factors: the rental value of a residence, and the rental value of agricultural buildings and land (or the productive income from utilizing the buildings and land). This practice is followed in establishing fair market value rent for CVNP farms.

Residential Component

The residential component of fair market value rent is determined by first obtaining an appraisal, prepared by a certified appraiser, which compares farm residences with similar properties in surrounding communities. This raw number is then adjusted to reflect several limitations, restrictions, and requirements. First, only persons with the knowledge, resources, and willingness to affirmatively farm according to CVNP guidelines are eligible to lease and live in these residences. Lessees must affirmatively comply with all applicable federal regulations and NPS requirements, including those related to archaeological, historical, and natural resources (e.g., National Environmental Policy Act, National Historic Preservation Act, Endangered Species Act). Moreover, lessees will experience a significant loss of privacy due to the residence's location on a park farm where limited but regular public access is encouraged. For these and other reasons, the raw appraisal will be reduced 50 percent for all residences, and an additional 10 percent for all residences listed in, or eligible for listing in, the National Register of Historic Places.

Productive Component

The productive component of fair market value rent will be computed as a percentage of gross farm revenue derived from farming and all other sources related to the use of the Initiative property. Other sources of lessee revenue, unrelated to use of the farm site, shall have no bearing on this rental component. This method of determining farm rent is one of several methods commonly referred to in the market place as a *flexible cash rent*. This particular form of flexible cash rent allows lessors and lessees to share in both the risks of production and in opportunities for profit.

The precise percentage paid by Midwestern farmers for rental of land varies widely by agricultural enterprise: 30 percent to 40 percent of gross revenue in conventional corn and soybean operations and 10 percent to 20 percent of gross revenue in chemically intensive fruit/vegetable enterprises. While CVNP farm enterprises will more closely resemble the latter, they carry an additional affirmative responsibility to use only approved sustainable production practices. Hence, the productive component of farm rent will be benchmarked at 10 percent of gross farm income. That benchmark will be reduced by 1 percent of gross income for certified organic producers since verification of sustainable production practices will be largely assumed by the certifying agency.

Sustainable farmers are also expected to be active land stewards, enhancing soil health and productivity through ecologically natural and beneficial practices which are relatively slow. Such practices often require five to ten years to reach (and stabilize at) optimum levels of production. Similarly, sustainable farmers are expected to create new retail markets where none currently exist - a process that also typically follows a slow growth curve, requiring five to ten years to achieve a high optimum level. Hence, a lessee's productive component of rent for sustainable farms will be discounted during the first ten years of operation: beginning at 5 percent of gross farm income in year one (4 percent for certified organic enterprises), and increasing thereafter .5 percent annually until reaching 10 percent in year ten (9 percent for certified organic).

APPENDIX G - FARM FENCING IN CUYAHOGA VALLEY NATIONAL PARK

A. Introduction

Fences are among the most common, character-defining elements of agricultural landscapes. It is impossible to imagine traditional diversified farming in North America without a web of fencing to organize and regulate the landscape. Wherever small-scale, diversified farming is pursued - as it was in the Cuyahoga Valley during the 19th and early 20th centuries - fences lace the landscape together and let working landscapes work. Fences define property boundaries and field boundaries as well as organize farmsteads by functional needs.

This appendix summarizes the history and functions of farm fencing in Cuyahoga Valley National Park. Fencing types are discussed in a historical context from their early uses and functions to the new functions required under the preferred alternative. The guidance provided here will help direct the preservation, rehabilitation, and construction of fencing under the alternatives.

The historical context of farm fencing is examined in Section B to illustrate how different farming contexts and needs have resulted in different types of fencing evolving over the years. A description of the specific types of historical fences once found in the Cuyahoga Valley is presented in Section C.

The need for a new management perspective on fencing is discussed in Section D. The required functions and significance of fencing under the preferred alternative is described in Section E. Preferred modern types of fencing that serve to facilitate the establishment of small sustainable farming operations in a national park context is then described in Section F.

B. Traditional Functions of Farm Fencing in the Cuyahoga Valley

Historical accounts of Anglo-American settlement of the Western Reserve, including the Cuyahoga Valley, portray an evolving pattern of farming – and fencing – repeated over and over from New England and Virginia to the Pacific (Cherry, 1921; Jones, 1983). Here, as elsewhere, pioneers had limited acreages of cultivated crops. For a time it was easier, even necessary, to fence in crops and allow livestock to forage at large. For a time, severe wildlife predation risks (e.g., bears, wolves, foxes) often required even livestock and poultry to be closely penned near the farm cabin, at least at night. Eventually though, Western Reserve bear and wolf populations were reduced making it easier to allow pigs and sheep to run at large, along with cattle, without undue loss of life.

For a few decades following early settlement in the Cuyahoga Valley (as in most of North America), farmers simply assumed that they must fence their own and their neighbors' livestock out of their crops. Wildlife damaging the crops were driven off or killed. As settlement density increased, there inevitably came a time in nearly every

community, when popular opinion shifted against the right of farmers to allow livestock to run at large. Whenever it did, one of the purposes of fences shifted from keeping livestock out, to keeping them in.

By the second half of the 19th century, as the Cuyahoga Valley continued evolving from early settlement conditions to a landscape extensively improved for diversified farming, the web of fencing on the land grew dramatically. Fences often marked property boundaries, and kept livestock in, most of the time. If they did not, a farmer was liable for the damage caused by his wandering animals.

As for wildlife predation, fences available through the late 19th century offered minimal protection. Hence, farmers expended great effort to control wildlife populations through hunting and trapping. Bears and wolves were largely eliminated, and with them most of the predation threat to pigs and sheep. Deer numbers were greatly reduced and with them a major threat to corn and vegetable crops. Foxes, raccoons, rabbits, woodchucks, and birds continuously threatened farmers' poultry, field crops, and garden vegetables. In general, eliminating predators or severely limiting their numbers was the farmer's only practical option well into the 20th century. Determined predators could almost always breach fence types commonly available and affordable.

C. Historical Fence Types in the Cuyahoga Valley

Fence types in the Cuyahoga Valley have evolved over time (NPS 2000b). The most common fence type in early settlements (apart from piled brush and stumps) was comprised of saplings or split rails placed one upon the other in a zigzag fashion. Northeasterners knew this practical fence, which was relatively cheap for materials and labor, as a *snake* fence, and southerners knew it as a *Virginia* fence. Eventually *post-and-rail* fences began to displace snake fences because they required less timber and wasted less land; however, they were far more labor intensive to build. Next, as sawn lumber became relatively abundant and affordable, so-called *board* fences began displacing split rail, at least near farm buildings and along highway frontages, for aesthetic if not functional reasons.

Barbed-wire became available and affordable by the 1870s and 80s. It became the fence of choice on many farms in the Valley, and across America. *Woven-wire* fences also became available in the 1880s. While more expensive in both material and labor than barbed-wire, woven-wire fences were decidedly superior at keeping sheep, goats, and swine in while keeping canines out. Although examples of all of the fence types described above continued to be built in the Valley well into the 20th century, barbed- and woven-wire fences eventually replaced most all-wood farm fences, except where the aesthetic appeal or physical strength of the older fence types seemed desirable.

It is also important to note that not all boundary delineations were necessarily fences that were structural in nature. Rather, some farmers in the Cuyahoga Valley utilized vegetation to delineate and organize the landscape. This is evidenced in historic photos

and several lithographs from the 1874 *Combination Atlas of Summit County, Ohio* where hedge rows and tree rows, and to a lesser extent shrubs, demarcate crop plots, meadows, and pastures. Although most of the visual documentation is concentrated around farmsteads, it is logical to conclude that this treatment extended to fields. In addition, several early 20th century landscape photographs indicate that vegetation was part of the “patterned” landscape. There is little evidence, however, to suggest that brush or stump fences or stone walls were used in the valley’s historic agriculture landscape. Due to cultural migration patterns and the settlement period, neither of these fencing traditions developed to any extent in the Cuyahoga Valley.

This evolving, inherently imprecise pattern of fence types that are correlated to settlement age and stages offers an important insight: a recognition that farm fences are *always* conceived and built in a *context* – including availability of natural resources, cultural knowledge and preferences, historical antecedents, available technologies, economic pressures, and so on. The contexts that existed in the past no longer exist. Neither the Valley’s early settlement context, nor its later industrial-urban context is the modern national park context.

D. Need for a New Fencing Paradigm in CVNP

The preferred alternative (Alternative 2 - Countryside Initiative) in this EIS requires a fundamental rethinking of CVNP’s management of farm fencing. Previously, many old farm fences were removed over the years under the perception that they were intrusions on the natural landscape or adversely affected wildlife. Adaptive reuse of historic and non-historic buildings usually disassociated structures from their surroundings. Only fences near such structures were normally regarded as significant. When nearby old farm fields are mowed to maintain the open vistas of a “rural landscape”, the extant fences served no functional purpose, and were apt to be removed for ease of mowing.

Little new construction of farm fences has occurred since the park was established. Except for some areas of severe deer pressure on sweet corn and vegetables, or for the pasturing of horses, SUP holders are not inclined to install fencing due to its high cost and the uncertainty of their tenure. Even when SUP holders feel obliged to build fences, their priority is almost exclusively low-cost functionality, not necessarily cultural and aesthetic goals.

The other alternatives in this EIS (Alternatives 1, 3, and 4) suggest that little or no new fencing is expected beyond those installed on working farms and those restored to preserve scenic value. Only Alternative 2 anticipates the need for a significant increase in fencing due to its emphasis on profitable agricultural activity. When profitable agricultural activity is absent, however, there is no functional need to install fences. In most of the alternatives, profitable agricultural activity should be minimal. As a result, the need for fencing is expected to be minimal as well. Fencing for these alternatives will likely be for aesthetic reasons rather than functional reasons. Thus, the guidelines and recommendations presented below are less applicable to Alternatives 1, 3, and 4. The

only constants are that aesthetically, the types and styles of fences must be modern but compatible to the historic rural character of the landscape, and that the installation of any fences will require the approval of the NPS including any additional environmental and cultural compliance.

Alternative 2 envisions a rural landscape dotted with small, diversified farms – created through the adaptive reuse of many of the farms which operated in the area from mid 19th to mid 20th centuries. These farms will be similar in scale to their predecessors and will grow and sell products largely similar to those raised in the area in the past. Like their predecessors, most of the new farms will integrate crop and livestock operations. On that basis alone, fences would again become as functionally necessary and visually prominent as they were in the landscapes of earlier decades. Preserving and protecting CVNP's rural landscape, therefore, if understood to mean a landscape of small diversified farms, also then means that fences must once again be viewed as integral elements of the landscape.

E. New Fencing Under the Countryside Initiative (Preferred Alternative)

Fences are always conceived, built, and maintained in a context. Fences built to support small, sustainable farms established under the preferred alternative are conceived as part of a program to preserve and protect for public use and enjoyment the park's historic, scenic, natural, and recreational values. Because these farms will be part of a modern national park context, their fences must take on additional special functions not required of their historical predecessors. Fencing on such farms has at least four major functions: farm organization, cultural landscape preservation, protection from depredation, and managing visitor access.

The first function is the traditional function of organizing farms into areas for crops, and areas for livestock. When crops are growing in a field, it is not productive to have livestock grazing in the same area. Perhaps after harvest, it would be acceptable for livestock to use that area. On some sort of cyclical plan, field crops and pastures may even switch sides of the fences that separate them. The farmer must be able to structure the use of his land in this fashion, and fencing is the appropriate tool for this task.

Preserving and protecting CVNP's rural landscape presents a new opportunity – and creates a new function – for the park's new fences. As noted, the preferred alternative envisions an adaptive reuse of CVNP's old farms which maintains both their general scale, and the general character of what they produce. Wherever practicable, attempts will be made to stabilize and conserve the size and pattern of old farm fields that still survive from earlier times. Where functionally appropriate to the modern needs of individual farms, new fencelines will be reestablished where old ones once ran. Permanent structural fences (built fences, which stay in place for several years,) will be used primarily to help fix in place and protect old field boundaries and perimeters. These fences should be built to meet modern functional needs while being aesthetically compatible to the historic setting. Historic fence types should not be replicated, as a false

representation of historic landscape elements is undesirable. In addition, the use of vegetation to delineate crop plots or fields is not expected to be common as they do not typically meet modern functional needs for profitable farming. Nonetheless, the reestablishment of structural fences and fence lines will be effective in restoring the character, look, and feel of the prior rural landscape.

Farming in the context of a national park presents special challenges related to wildlife predation – challenges that can not be solved as they were historically in the Cuyahoga Valley. CVNP like most national parks is a haven for wildlife. On federal land, traditional routine hunting, trapping, or poisoning to reduce predator populations is not an option. But it is impossible to farm in CVNP or anywhere else without limiting the predation of both crops and livestock to tolerable levels. Protecting farmers and wildlife from each other is a necessity. Most farm fields in CVNP, like various other protected locations in the park, must be conceptually regarded as “exclusion” areas that are off-limits to certain kinds of wildlife. Fences are a partial – but still key – solution to this wildlife challenge. Some modern fences, and fencing techniques, offer significantly more protection against wildlife predation than the fence types available through most of the 19th and early 20th centuries. Such fences are discussed in the following section, along with management practices that must supplement the simple physical barrier presented by a fence alone. Clearly, good fencing offers the most effective and benign way to enable farmers and wildlife to coexist with minimal conflict.

An additional special challenge for farming in a national park involves human visitors. Park visitors’ curiosities will likely lead them to farmers’ fields. While the NPS envisions farms that routinely and regularly welcome public visitors, it is not acceptable for visitors to routinely wander through planted fields, harvest an occasional vegetable, or disturb farmers during their dinners. Farm fences will help identify areas that are occasionally off-limits to park visitors. People will be able to visit farms in the park, but when guided by the intents and schedules of farmers. Among other things, fences become a kind of management tool helping farmers direct park visitation around their farm landscape.

F. Preferred Modern Types of Fencing for CVNP

Alternative 2 assumes that among the great strengths which farmer-lessees bring to CVNP’s effort to preserve and protect its rural landscape are creativity, ingenuity, technical knowledge, and practical farming experience. They will be expected to focus their talents and skills on numerous issues, including fencing for their own farm enterprises. Farmers are best suited to make most of the detailed decisions about fence types, materials, etc. The guidance that follows is intended to provide a general framework of understandings, assumptions, and expectations which park managers and farmers can work within – together, effectively, and efficiently.

It is not the intent of the NPS to be unnecessarily restrictive or prescriptive relative to farm fencing. CVNP staff will work closely with farm lessees to solve particular fencing

needs on the farmstead and in farm fields. It is a requirement that farm lessees receive NPS approval for fence characteristics (i.e., types, styles, materials, applications, and locations) prior to their installation. Additional compliance work may also need to be completed.

A brief discussion of the factors new farmers will need to consider as they plan new fencing for the adaptive reuse of farmsteads follows. With such factors in mind, the solutions preferred by the NPS for various fencing problems are presented.

Fencing around farmhouses will be treated differently than fencing around barns, outbuildings, and fields. Fencing around farmhouses was historically more decorative than functional in nature and it is expected that this will be the same for rehabilitated farmsteads. As it is more decorative in nature, fencing around farmhouses is not considered to be essential to the profitability or efficiency of rehabilitated farms and it is not expected that a large amount of fencing in these locations will occur. Thus, the following discussions do not apply to farmhouses and the NPS will look at these limited fencing proposals on a case by case basis.

In the field and around barns and outbuildings the situation differs. Fencing in these areas will be critical to the profitability and efficiency of rehabilitated farms. Thus, a large amount of fencing in these locations is expected. However, what is required to keep one animal in or out may not do for another. Fences that will ordinarily stop most dairy cattle, frequently are not equal to the task of stopping beef breeds. Cattle fences often will not contain sheep or goats – although good sheep and goat fences normally will hold cattle. Fences that will keep coyotes and dogs out will usually keep sheep and goats in, but the reverse is often not true. Fences that keep ewes in, will not necessarily keep lambs in. Some breeds of each species are taller, stronger, and flightier than other breeds – and their fencing must respond to their relative strength and agility. Hungry animals put more pressure on a fence than well-fed animals; males more pressure than females. Young livestock and their mothers are always desperate to breach fences at weaning time – fences that normally work, won't work at this time. In short, fences must be conceived and built for their most difficult task. Modern CVNP farm fences will deal with all of these varied issues and factors.

While *livestock* fencing in CVNP will generally be concerned with keeping animals *in*, *predator* fencing will be concerned with keeping wildlife *out* of both a farmers' livestock and crops. Pastures and field crops are exclusion areas for some wildlife, some or most of the time. Fences will need to keep coyotes, foxes, raccoons, and skunks out of farmers' sheep, goats and poultry. Deer, woodchucks, raccoons, rabbits, and birds must be kept out of crops – at least at certain times. In general, physical exclusion with fencing or netting is more effective and less intrusive than any and all kinds of “scare” devices such as air cannons, tape recordings, reflective tape, or balloons. Fencing – supplemented whenever necessary by guardian animals – is the preferred method of managing wildlife predation on sustainable farms.

Table A2 shows in a simple way the most common wildlife species likely to damage CVNP field crops. It identifies the specific crops threatened by each species, and indicates the basic fencing required to significantly reduce their damage (adapted from Grubinger 1999).

Without getting mired in the myriad details encountered in a modern catalog of fencing materials, preferred general fence types can be described. First, the desire to preserve and protect the general character, scale, and look of the Valley's prior farm landscapes means that, where practical, *permanent fences* should be established around the boundaries of most major fields. These new permanent fences should be functional and modern in type, yet historically compatible to the setting. It is suggested that the fences be built with wooden posts and woven or smooth-wire or a combination thereof with the intention of looking *much* like traditional wire fences built in the Cuyahoga Valley area for well over a century. While barbed-wire was one of the two most commonly built wire fences prior to World War II, its use will be restricted to near-ground-level installations intended to deter digging predators. Smooth, high-tensile, electrified wire is today generally regarded as superior to barbed-wire for controlling livestock without injury and is far superior for discouraging most wildlife predators.

Modern, small-scale farms, which follow sustainable agriculture practices, commonly resort to very intensive management of small areas for both livestock and crops. Hence, they require frequent (often daily) movement of grazing animals, or they need to protect vegetable or flower plots against predators for just a few days or weeks at a time. This is typically achieved with moveable *temporary fencing* made of (relatively) lightweight materials such as plastic or steel. The types and styles of such fencing commercially available are extremely numerous and diverse, and many are acceptable for managing temporary interior subdivisions of farm fields.

Table A2. Controlling Wildlife Crop Damage with Exclusion Fencing

<u>Wildlife</u>	<u>Crops Typically Damaged</u>	<u>Basic Exclusion Fencing</u>
Deer	Lettuce and other greens, crucifers, legumes, squash, pumpkins, sweet corn, sunflowers, fruit trees, Christmas trees, flowers	High tensile electric fencing 4' – 6'; slanted high tensile fence is an effective alternative
Woodchuck	Seedlings, lettuce and other greens, crucifers, legumes, squash and pumpkins, fruits	3' hardware-cloth fence (plus 1' buried); hot wire supplements
Raccoons	Mature sweet corn and melons	At least 2 hot wires at 6" and 12"
Rabbits	Seedlings, lettuce and other greens, carrots, parsnips, beets	2' woven-wire, or chicken wire is effective
Birds	Corn seedlings and mature corn, tomatoes, melons, and fruits	While netting is relatively expensive, it is far more effective than any form of scare device

APPENDIX H - SUMMARY OF WETLAND AND RIPARIAN BUFFER ZONES

A. Introduction

Buffers protect aquatic systems by moderating the effects of storm water runoff by stabilizing soils, filtering harmful substances, reducing sedimentation and nutrient input, and moderating water level fluctuations and flooding. Wetland buffers also provide essential wildlife habitat for feeding, roosting, and breeding. Forested buffers shade waters thereby moderating temperatures and oxygen levels for aquatic wildlife. Buffer zones afford wildlife cover for safety and thermal protection. Riparian buffers can also act as effective corridors for wildlife movement. Additionally, buffer zones increase the aesthetics and recreational opportunities of water resources.

A brief overview of how the NPS assigns buffer zones for wetlands and riparian areas that are associated with agricultural uses in Cuyahoga Valley National Park follows. The protocols for establishing buffer zones for wetlands and riparian zones differ slightly because the value and required functions of buffers for these areas differ. For example, wetlands are more prone to sedimentation and deposition of nutrients due to low water velocities. Riparian areas are more susceptible to erosion effects. Wildlife habitat values of wetlands and riparian corridors differ as well.

B. Wetland Buffers

The *Wetland Protection Plan for Proposed Agricultural Lands* in CVNP outlines a protocol to explicitly prevent direct and indirect wetland impacts from NPS activities on agricultural lands through wetland identification, delineation, quality assessment, buffer zone establishment, and monitoring (NPS 2002b).

Wetland buffers are vegetated areas that reduce the adverse impacts on wetland values and functions from adjacent land use. An excellent overview and literature review of the roles of wetland buffers and effective buffer sizes is available (Castelle et al. 1992).

Wetland buffer recommendations are prescribed based on wetland quality assessments using an adaptation of the Ohio Rapid Assessment Method (ORAM) (Mack 2001) and the associated scoring methodology (Mack 2000). Generally, sensitive or unique wetland areas would be assigned larger buffers and low quality areas would require smaller buffers. Wetland buffers in CVNP will be established from a minimum of 25 feet to 200 feet or more. The following initial buffer categories based on wetland quality are:

Wetland Category	Buffer Size
1 - Very Low Quality*	25' – 50'
2a - Moderate Quality	50' – 125'
2b - Moderate Quality	125' – 200'
3 - Very High Quality	200'+

*Only tiny tire-rut and roadside ditch wetlands would receive buffers less than 50 feet. Buffers of 50 feet are recommended for all other low quality wetlands.

Buffer zone adjustments are then prescribed based on site-specific resource issues, restoration potential, and the type of proposed agricultural land use. Areas with significant natural resources or high restoration potential will be assigned larger buffers.

C. Riparian Buffers

The *Riparian Buffer Plan for Proposed Agricultural Lands* in CVNP outlines a protocol to explicitly prevent direct and indirect impacts on the Cuyahoga River and its tributaries from NPS activities on agricultural lands through buffer zone establishment and monitoring (NPS 2002a).

Riparian buffers are vegetated areas beside rivers and streams that help reduce the adverse impacts that adjacent land use may have on water resources. Excellent reviews of the roles of riparian buffers and recommended buffer sizes are available (Desbonnet et al. 1994; Wenger 1999).

Buffer zones will be applied to both sides of all watercourses including intermittent, perennial, and ephemeral streams. The base width of buffers will be assigned as follows based on drainage area:

Drainage Area (sq. mi.)	Base Width (ft.) (each side)	Examples (sq. mi. drainage)
0.5	50	Small intermittent streams, unnamed upper tributaries
0.5 - 20	75	Haskell Run (1.3), Langes Run (3.9), Columbia Run (5.4)
20+	120	Yellow Creek (30+), Tinkers Creek (50+), Furnace Run (50+), Cuyahoga River (800+)

An additional 2 feet will be added to the base width for each 1 percent of slope. Buffers will be extended by the width of impervious surfaces and areas with slopes greater than 25 percent as these do not provide effective buffer function. Adjacent wetlands will be

included within riparian buffers but are also not counted as part of the base riparian buffer width. Wetlands will be assigned buffers as described earlier, extending riparian buffers if necessary.

D. Agricultural Uses in Buffers - Managed Zones

Some sustainable agricultural uses do not significantly impact buffer zone function and may actually improve buffer function (e.g., management intensive grazing). Buffer zones may therefore be managed as a two-zone system, a Protection Zone and Managed Zone. Some sustainable agricultural use of the Managed Zones may be permitted provided that no fertilizer or pesticide use occurs, only no-till seeding occurs, and rotational grazing practices are maintained. Other uses that will not impact the protective function of this portion of the buffer zone (e.g., planting of shrub crops such as berries) may also be considered. All such uses will be reviewed on a case by case basis.

For wetlands, Managed Zones are defined as the buffer area that extends beyond 150 feet. Wetlands with buffers of 150 feet or less will have no Managed Zone. Riparian buffer zones may be managed as a two-zone system when at least 50 feet of forest extends from the edge of a watercourse, and the outer 25 feet of the buffer has not already progressed into a shrub or forest stage (i.e., it is currently cultivated or mowed or is characterized as largely herbaceous). In these situations, the outer 25 feet of the established buffer area may be established as a Managed Zone.

E. Monitoring Buffers

Monitoring efforts will be established to assess buffer effectiveness and recommend additional buffer zone adjustments should original buffers prove less than adequate. A comprehensive monitoring program including research on wetland ecological indicators are currently in development. Some ongoing basic monitoring efforts (e.g., water quality) already overlap with established park monitoring. Other more robust and sensitive wetland monitoring tools are being investigated for use in the park (e.g. Danielson 1998, Rader et al. 2001). Baseline monitoring data will be collected before farming activity begins whenever possible and will then be reassessed periodically to assess changes and trends. Additionally, annual reviews of lessees' compliance with land use restrictions including protection of buffer areas will be performed as conditions of leases.

